

REMARKS/ARGUMENTS

| Applicants have amended his rejected claims to more particularly point out his invention. Specifically, applicants have added limitations to independent claim 20 and dependent claim 27, and have also filed a new independent claim 40 that is identical to amended claim 20 but recites a different lithographic wavelength. Applicants request the USPTO to reconsider and allow this case in view of the amendments and the following remarks.

The applied Berggren et al. reference teaches a nanocrystal based optical modulator for optical communication. Berggren et al. teach optical modulators that work in the spectral range of 600 nm – 650 nm. See for example Abstract and Claim 1.

The Examiner contends it would have been obvious to modify Cooper to use Berggren et al's optical modulators. However, Berggren et al. says nothing about lithographic applications, and fails to teach or suggest modifying his modulators to work at specific lithographic wavelengths including 193 nm, 248 nm, 157 nm and 365 nm as now specifically recited in applicants' various claims.

Berggren et al discusses modifying his crystal size for operation at wavelengths of 630 to 830 nm, but does not teach or suggest any modification for operation in the lithographic wavelengths. The Examiner has not demonstrated that Berggren et al's structure could be so modified as a practical matter, nor has the Examiner shown any motivation for combining Berggren et al's telecommunications-based modulators for use in Cooper's lithographic process.

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Appl. No. 10/730,381
February 14, 2007

Furthermore, the sapphire recited in dependent claim 27 is highly transparent at the specific lithographic wavelengths including 193 nm, 248 nm, and 157 nm. Optical glasses are generally completely opaque at wavelengths shorter than 300 nm. Hence, the combination recited in dependent claim 27 independently distinguishes over the applied references for this additional reason.

All outstanding issues have been addressed and this application is in condition for allowance. Should only minor issues remain outstanding, the Examiner should contact the undersigned at the telephone number listed below so they can be resolved expeditiously without need of a further written action.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: /Robert W. Faris/

Robert W. Faris
Reg. No. 31,352

RWF:ejs
901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100